WHAT IS CLAIMED IS:

1. A bus interface unit for transferring data between a plurality of bus devices, said bus interface unit comprising:

a first bus device interface comprising:

a first incoming request bus for receiving request packets from a first one of said plurality of bus devices;

a first outgoing request bus for transmitting request packets to said first bus device;

a first incoming data bus for receiving data packets from said first bus device; and

a first outgoing data bus for transmitting data packets to said first bus device; and

a second bus device interface comprising:

a second incoming request bus for receiving request packets from a second one of said plurality of bus devices;

a second outgoing request bus for transmitting request packets to said second bus device;

a second incoming data bus for receiving data packets from said second bus device; and

a second outgoing data bus for transmitting data packets to said second bus device.

2. The bus interface unit as set forth in Claim 1 wherein a first one of said request packets received on said first incoming request bus comprises a physical address field and a request type field.

3. The bus interface unit as set forth in Claim 2 wherein said first request packet further comprises a priority field.

4. The bus interface unit as set forth in Claim 3 wherein said request type field comprises a write data indicator indicating that said first request packet is a first write data request operable to transfer a first data block stored in said first bus device to said second bus device.

5. The bus interface unit as set forth in Claim 4 wherein a first one of said data packets received on said first incoming data bus is associated with said first write data request.

6. The bus interface unit as set forth in Claim 3 wherein said request type field comprises a read data indicator indicating that said first request packet is a first read data request operable to transfer a second data block stored in said second bus device to said first bus device.

7. The bus interface unit as set forth in Claim 1 wherein a first one of said request packets received on said first incoming request bus comprises a source identification value identifying an initiating bus device that initiated said first request packet.

8. The bus interface unit as set forth in Claim 7 wherein said first request packet comprises a destination identification value identifying a recipient bus device to which said first request packet is being transmitted.

9. An integrated circuit data comprising:

N bus devices capable of transferring data with one another; and

a bus interface unit for transferring data between said N bus devices, said bus interface unit comprising N bus interfaces, each of said N bus interfaces comprising:

an incoming request bus for receiving request packets from a first one of said plurality of bus devices;

an outgoing request bus for transmitting request packets to said first bus device;

an incoming data bus for receiving data packets from said first bus device; and

an outgoing data bus for transmitting data packets to said first bus device.

10. The integrated circuit as set forth in Claim 9 wherein a first one of said request packets received on said first incoming request bus comprises a physical address field and a request type field.

11. The integrated circuit as set forth in Claim 10 wherein said first request packet further comprises a priority field.

12. The integrated circuit as set forth in Claim 11 wherein said request type field comprises a write data indicator indicating that said first request packet is a first write data request operable to transfer a first data block stored in said first bus device to a second one of said plurality of bus devices.

13. The integrated circuit as set forth in Claim 12 wherein a first one of said data packets received on said first incoming data bus is associated with said first write data request.

14. The integrated circuit as set forth in Claim 11 wherein said request type field comprises a read data indicator indicating that said first request packet is a first read data request operable to transfer a second data block stored in a second one of said plurality of bus devices to said first bus device.

15. The integrated circuit as set forth in Claim 9 wherein a first one of said request packets received on said first incoming request bus comprises a source identification value identifying an initiating bus device that initiated said first request packet.

16. The integrated circuit as set forth in Claim 15 wherein said first request packet comprises a destination identification value identifying a recipient bus device to which said first request packet is being transmitted.

17. For use in a bus interface unit comprising N bus interfaces, each of the N bus interfaces comprising: i) an incoming request bus for receiving request packets; ii) an outgoing request bus for transmitting request packets; iii) an incoming data bus for receiving data packets; and iv) an outgoing data bus for transmitting data packets, a method of transferring data to a first bus device from a second bus device, the method comprising the steps of:

receiving a data read request packet from the first bus device on an incoming request bus coupled to the first bus device;

transmitting the data read request packet to the second bus device on an outgoing request bus coupled to the second bus device;

receiving a data packet from the second bus device on an incoming data bus coupled to the second bus device; and

transmitting the data packet to the first bus device on an outgoing data bus coupled to the first bus device.

18. The method as set forth in Claim 17 further comprising the step of receiving an acknowledgment response packet from the second device on an incoming request bus coupled to the second bus device concurrently with the step of receiving the data packet from the second bus device.

19. For use in a bus interface unit comprising N bus interfaces, each of the N bus interfaces comprising: i) an incoming request bus for receiving request packets; ii) an outgoing request bus for transmitting request packets; iii) an incoming data bus for receiving data packets; and iv) an outgoing data bus for transmitting data packets, a method of transferring data from a first bus device to a second bus device, the method comprising the steps of:

receiving a data write request packet from the first bus device on an incoming request bus coupled to the first bus device;

receiving a data packet from the first bus device on an incoming data bus coupled to the first bus device;

transmitting the data write request packet to the second bus device on an outgoing request bus coupled to the second bus device; and

transmitting the data packet to the second bus device on an outgoing data bus coupled to the second bus device.

20. The method as set forth in Claim 19 wherein the step of receiving the data write request packet and the step of receiving the data packet are concurrent.